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Research staff and public engagement: a UK study

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Abstract Public engagement plays an important role in the contemporary UK academy, and is promoted through initiatives such as Beacons of Public Engagement and research grant 'Pathways to Impact'. Relatively little is known, however, about academic experiences of such engagement activities. This study focuses on one staff group, contract researchers, to explore the perceived challenges and opportunities of public engagement. Qualitative and quantitative data—from a web-based survey and three focus groups—are used to show that, while engagement activities are often seen as rewarding, the challenges involved in participating in them are profound. While researchers report practical needs, such as for logistical support or communication training, key barriers relate to the conditions of contract research more generally, and specifically to job insecurity, transiency, and lack of autonomy.

Keywords Contract research staff · Public engagement · Mixed methods research · UK

Introduction

Writing in 2001 in the journal *Public Understanding of Science*, and reflecting on the changes that had taken place within UK science communication over the last 15 years, Steve Miller noted that, as a result of concern about public scientific literacy, public communication had moved from being the domain of "very senior and (probably) research inactive scientists" to one populated by scientists at all stages of their careers (Miller 2001, 116). The wave of funding that emerged from the 1985 Bodmer Report (developed by a Royal Society Committee evaluating the state of public knowledge about science) had, he argued, effectively "legitimized science communication and mobilized the scientific community to carry it out" (p. 119). In the space of a few years, talking to the public had gone from being a niche activity to one which many, if not all, scientists at least knew about and may even have participated in.

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This move has gathered pace over the past decade. At the level of policies, concordats, and guidelines (Abreu et al. 2009; RCUK 2010), at least, the contemporary British academy[1] is marked by a widely shared acceptance of the importance of public engagement (Gregory and Lock 2008)—not just for science, but for all research. For instance: Beacons for Public Engagement, headed by the National Coordinating Centre for Public Engagement (NCCPE), exist in six locations across the UK, where they "support, recognise, reward and build capacity for public engagement work" through partnerships between universities and community organisations (NCCPE 2011). Schemes on both national and local levels, such as the STEM (Science, Technology, Engineering and Medicine) Ambassadors programme,[2] bring academic staff into contact with children and young people. Training on working with the media or with public groups is increasingly available and is provided by both individual universities and organisations such as the Science Media Centre and the British Science Association. RCUK (Research Councils UK, the UK's major funding body) grants now require investigators to describe their research's 'pathways to impact', of which public engagement is one type[3], and both the research councils and wider government—through the Sciencewise Expert Resource Centre—carry out regular public dialogues to inform policy and decision making (Chilvers and Macnaghten 2011; Jones 2008). In addition to these formal programmes, there are also a myriad of informal, small-scale engagement activities organised at the level of individual universities, departments, research groups and academics and encompassing everything from open days to community-led research (Duncan and Spicer 2010; Turney 2006). Diversity is thus a key feature of this landscape. Those who attempt to define public engagement are careful to do so in very broad terms—the NCCPE, for instance, says that:

> Public engagement describes the many ways in which higher education institutions and their staff and students can connect and share their work with the public. Done well, it generates mutual benefit, with all parties learning from each other through sharing knowledge, expertise and skills. In the process, it can build trust, understanding and collaboration, and increase the sector's relevance to, and impact on, civil society.[4]

Public engagement is therefore understood as encompassing the full range of ways in which university staff "connect and share" with lay publics. This includes, for instance, volunteering activities, participatory social research, public lectures, and even informal conversations about research outside the university setting, as well as more familiar activities such as giving talks to school groups or holding university open days. This emphasis on diversity, however, conceals older debates on the nature and purpose of public communication of research, dating from the publication of the Bodmer Report mentioned above. Should public engagement be about enhancing public understanding of scientific (and other) research? Or should it be a dialogue, in which researchers are informed as

[1] This article focuses on the UK context—widely seen as an international leader in the support and innovative development of public engagement with research (see, for instance, Bowman and Hodge 2007)—though similar developments are occurring across Europe and the US (McCallie et al. 2009; Rask et al. 2012).

[2] STEM Ambassadors are volunteers with STEM backgrounds—for instance those working in scientific research—who act as"inspiring role models for young people". See: http://www.stemnet.org.uk/content/ambassadors.

[3] See http://www.rcuk.ac.uk/kei/impacts/Pages/home.aspx.

[4] http://www.publicengagement.ac.uk/what. The definition was accessed from the NCCPE website in February 2011.

much as informing (see Irwin and Wynne 1996)? Both of these models of public engagement—as dissemination or as participation—have left traces on discussion and practice, and the question of which model should dominate continues to be a very live debate (Duncan and Spicer 2010; Irwin 2006; Lehr et al. 2007).

Aside from these more theoretical discussions, the notion of public engagement has become a commonplace, and is a normative expection from funding bodies, government, and many universities themselves (RCUK 2010; Science for All Expert Group 2010). There is little data on how such policies and activities are operationalised, however—on the extent, in other words, to which policy has been translated into practice. Understanding of features such as how often academics carry out engagement, the type of activities they participate in, and their views on such processes is limited. A 2008–2009 survey of over 20,000 academic staff indicated that up to 38 % had been involved in some form of 'community-based activity' such as giving public lectures or working with schools (Abreu et al. 2009). In contrast, a survey of 1,485 scientists carried out in 2006 found that 74 % reported having taken part in some form of science communication or public engagement activity over the preceding year (Royal Society 2006). Both studies indicated that 'one-way' communicative forms, such as public lectures, were more common than dialogic forms such as collaborative research or dialogue events. Qualitative research has found that those who participate in public engagement largely report enjoying their participation (Pearson et al. 1997), give a wide range of different motivations for getting involved (Science for All Expert Group 2010), and describe a set of constraints and barriers which include lack of time and recognition in the academy (Abreu et al. 2009; Burchell et al. 2009; Royal Society 2006). The ways in which different university populations—students, academics, staff—become involved in engagement activities remains largely unclear (though see Holdsworth and Quinn 2010).

The study described in this article therefore sought to develop knowledge about the ways in which public engagement is understood and carried out in the UK academy, aiming to explore the ways in which engagement is conceptualised and the challenges and opportunities it presents to university researchers. Specifically, it focused on the experiences of contract research staff—an under-studied community at the best of times (Lee et al. 2006) and even more so in the context of public engagement.[5] A diverse group who enter the academy through a number of different paths (Hockey 2004; Lee et al. 2006), research staff—the vast majority of whom are employed on fixed term contracts (Oliver and Ackers 2005)—are a marginalised body within academe, often lacking in status and requiring specific skills to survive with any degree of career continuity (Collinson 2003; McAlpine 2010; Shelton et al. 2001). Such skills include the "generic craft practices needed to complete contract research in a pressurised environment" (Collinson 2000, 169), including the ability to quickly become adept in a particular body of knowledge and to 'find time' within one project to prepare a grant proposal for the next. Data from the Careers in Research Online Survey indicates that the more long term the experience researchers have with multiple, short contracts, the less likely they are to feel integrated

[5] I can find only one brief exploration of research staff attitudes to public engagement in the literature, in which 'public understanding of science' appears as a transferable skill within a survey measuring researcher's perceptions of their skill sets (Lee et al. 2010). The authors note that "communication skills scored in the bottom half of the rankings with the promoting the public understanding of science ranked lowest overall" (ibid, 273).

with their institutions and satisfied with their careers (Mellors-Bourne and Metcalfe 2009).[6] Contract research staff therefore face unique challenges within the academy. As the 'coalface' of academic research (Shelton et al. 2001), they offer an important case study of the ways in which public engagement is being operationalised at the level of research practice. At the same time, research staff are encultured into the academic environments within which they work (Laudel and Gläser 2007); their views on public engagement, then, are likely to be broadly representative of wider academic cultures (see Davies 2013).

The study

The project used a mixed methods approach (Tashakkori and Creswell 2007) so as to, first, explore the overall degree to which research staff are familiar with and participate in public engagement and, second, interrogate their understandings of it in detail. The research incorporated quantitative and qualitative data collection: an initial survey instrument, designed to reach as many contract research staff as possible, included both closed and open-ended questions regarding participants' experiences of public engagement; while a follow-up phase involved three focus groups, each exploring the challenges and opportunities of public engagement, with research staff in three different locations. The timing of the two phases was such that the focus group question schedule could be influenced by key issues emergent in the survey data.

The survey was constructed and disseminated using the online tool Survey Monkey. Questions were designed to explicate demographics (discipline, gender, years of post-doc experience), involvement in public engagement (experiences, understandings, challenges), and training and development needs. Designed to be completed within ten minutes, the survey was circulated as widely as possible and publicised through both research staff and public engagement networks such as the Vitae Research Staff Blog, the UK Research Staff Association, the Beacons for Public Engagement, the NCCPE, and Vitae Regional Hubs.[7] Recruitment was therefore through a snowball sampling method (Creswell 2002).[8] While not designed to be fully representative—an impossible aim given the amorphous nature of the UK's research staff population (Mellors-Bourne and Metcalfe 2009)—the survey did aim to gain some insight into key trends in researchers' experiences of public engagement. Of those who began the survey, approximately 80 % finished it, garnering 273 complete responses.[9] Research staff respondents were located across the disciplines (52.6 % from biological or biomedical sciences, 22.1 % from physical sciences and engineering, and

[6] Even the exact number of contract researchers is unclear: the UK's Higher Education Statistics Agency has reported 38,000 across the UK, but this figure relies on self-reporting by institutions, many of whom may use differing definitions of research staff (Mellors-Bourne and Metcalfe 2009).

[7] Vitae is the "UK organisation championing the personal, professional and career development of doctoral researchers and research staff in higher education institutions and research institutes" and is funded by RCUK. See www.vitae.ac.uk.

[8] It is impossible to say, then, how many individuals were reached through this sampling technique—though, given that organisations such as the NCCPE have email lists of several hundred individuals, and that there were over 450 initial respondants to the survey (not all of whom were research staff), it is likely that it numbers in the thousands.

[9] Thus of the 340 respondants who started the survey and identified themselves as research staff, 80% of this number—273 individuals—fully completed the survey. In addition, 124 other respondants started the survey, but identified themselves through other job titles or roles. These responses have been filtered out of this data.

22.1 % from the social sciences), with the exception of the arts and humanities, which comprised just 3.2 % (11 individuals) of respondents. The female-male balance was 65.3–34.7 %. These demographics are broadly in line with the character of the UK research staff population as a whole, as far as that is known (Mellors-Bourne and Metcalfe 2009).[10]

Issues raised in the survey were then explored in further detail through focus groups held in three universities around the UK.[11] The groups consisted of between three and eight participants, lasted between 45 and 90 minutes, and were made up of researchers with no experience of public engagement (group 1), a mix of those with experience of engagement and those with none (group 2), and researchers who had all participated in public engagement activities (group 3). Participants came from across the natural and social sciences, with one participant from an arts discipline. The groups were moderated using a semi-structured question schedule: topics included participants' involvement in public engagement, the challenges and opportunities of this involvement, and the types of activities they had or wanted to engage in. With the permission of participants, discussion was recorded and transcribed in full.

The full dataset from this project therefore includes both quantitative data (from the survey) and qualitative data (from the survey and the focus groups). While both will be reported here, the focus will be on qualitative responses given that, within the survey, responses to open-ended questions were particularly revealing, with many participants writing extended accounts of their experiences or preferences. This data was combined with that from the focus groups and coded using the software tool TAMSAnalyzer for key themes which emerged around experiences and understandings of public engagement (Silverman 2005). In the discussion that follows I chart these key themes, describing, firstly, the extent to which respondents had participated in different forms of public engagement; secondly, their understandings of it; and, finally, the challenges they reported around such participation. I close by discussing some implications of these findings.

Researcher involvement in public engagement

68 % of respondents answered yes to the question 'Have you ever been involved in any form of public engagement activity?'. This is located between the figures identified by a 2009 UK Innovation Research Centre report, which found involvement in 'community based activities' at between 3 and 38 % (depending on the activity; Abreu et al. 2009), and a 2006 Royal Society survey, which found that 74 % of scientists reported involvement in public engagement or science communication over the past year. While allowance must be made for the propensity of those already interested and active in public engagement to participate in a survey on public engagement—and the relative lack of appeal of such a survey to the 'disengaged'—a participation rate of approximately two thirds seems at least broadly in line with data from the wider academic community and would indicate that research staff participate in public engagement at least as often as other academic staff.

[10] Though it seems likely that the focus on public engagement attracted slightly more women (65 % compared to 55 % of respondents) and researchers working in social studies (22 % compared to 10 %) to participate (cf Mellors-Bourne and Metcalfe 2009).

[11] The three universities included two 1994 Group institutions and a smaller, non-affiliated specialist institution. The groups were organised and recruited through a combination of personal contacts (for example, through contacts made at the 2010 Vitae Researcher Development Conference) and those identified as interested in follow-up activities within the survey.

Table 1 Public engagement activities research staff participate in

Response options	Responses (% of total)
Giving a public talk or lecture	43.8
Going into a school (for example through the researchers in residence programme) or working with schoolchildren	39.0
Involvement in a university open day	37.6
Writing for public audiences	34.3
Being involved in a science festival	29.0
Volunteering activities	26.7
Knowledge transfer activities or working with industry	22.4
Being interviewed for a newspaper or magazine	21.0
Other kind of activity (please specify)	19.5
Presenting at a museum or science centre	18.6
Appearing on TV or radio	18.1
Carrying out participatory or action research	17.6
Carrying out public consultations or community-informed research	12.4
Acting as a STEM (Science, Technology, Engineering and Maths) Ambassador or role model	10.5
Participating in a dialogue event or process	10.0
Interacting online with the public	10.0
Training or teaching public groups to carry out research	7.1
Participating in or running a science/research cafe	6.7

The survey also included a list of engagement activities that researchers may have had some experience of.[12] For those who had been involved in engagement activities, the most common formats were giving public talks or lectures (43.8 %), going into schools (39 %), and participating in university open days (37.6 %). More participatory formats—such as action research (17.6 %), dialogue events (10 %), or training public groups for research (7.1 %)—were less common. 19.5 % of respondents also said that they had been involved in another kind of activity not listed: when prompted, responses indicated that these were often specific activities, such as involvement in 'I'm a Scientist, Get Me Out of Here' (an thrice-yearly, online talent contest-style event in which scientists interact with school students[13]) or a particular public exhibition. Table 1 gives the full breakdown of activities, and indicates a relatively even spread across these different activities, with no one format dominating.

With regard to frequency of involvement, most research staff who participate in public engagement do so either two to three times a year (29.5 %) or once a year (27.6 %). 13.3 % said they had carried out engagement once only, but 12.4 % checked the response 'All the time—it's an integral part of my job'.

[12] This list was developed in collaboration with the National Coordinating Centre for Public Engagement (NCCPE; see http://www.publicengagement.ac.uk) in order to provide a realistic spread of the kinds of activities academics have opportunities to participate in.

[13] See http://about.imascientist.org.uk.

Respondants were also asked to give some basic demographic details, including the discipline they worked in and how many years postdoctoral experience they had. It is therefore possible to look at how participation is structured across these variables: in fact, participation in public engagement was spread evenly across disciplines, with those in biomedical sciences reporting the lowest levels of involvement (57.9 %), and peaking with 78.1 % of those working in physical sciences and engineering reporting involvement (excluding the arts and humanities, where the low numbers of respondents—just 11 individuals—has meant a likely skewing of responses).[14] Similarly, there was remarkably little variation around participation in terms of career stage. Perhaps unsurprisingly, those who had not yet finished a PhD reported the least degree of involvement (with just 53 % saying they had participated in public engagement at least once), but those with other levels of experience varied only between 70.4 % (for those with 3–5 years postdoctoral experience) and 76.7 % (less than 1 year since finishing the PhD). (There was therefore also no upward trend or correlation between amount of postdoctoral experience and participation in public engagement.) There is little opportunity in this data, then, to examine the ways in which career trajectory or discipline may affect academic experiences of public engagement: in both the quantitative and qualitative data, there appears to be little variation around these variables and participation in public engagement. Further research—for example a larger survey, or more focused qualitative research with academics in particular disciplines—may elicit more pronounced differences.

Researcher understandings of public engagement

The quantitative data discussed above gives some sense of the degree to which contract research staff participate in public engagement: roughly two thirds report being involved in such activities at least once, and, of those, most carry out engagement one to three times a year. A wide array of activities are used as vehicles for engagement.

This provides some indication of the *extent* to which public engagement has permeated mundane cultures of research in the UK. What is perhaps a more interesting question is of what model(s) of engagement are being operationalised in these practices.[15] How is public engagement being understood by research staff? In the sections below I sketch out some of the key ways in which public engagement was discussed in the qualitative data.

Public engagement as an obligation

While not all participants had been involved in public engagement, the research did reveal a widespread awareness of the term and a general sense that it is a good—perhaps even

[14] The other values were 66.7 % (Social Sciences), 69 % (Biological Sciences) and 90.9 % (Arts and Humanities) of respondants answering 'Yes' to the question: Have you ever been involved in any form of public engagement activity? The categorisation of disciplines is taken from the 2009 Careers in Research Online Survey (CROS; Mellors-Bourne and Metcalfe 2009), the only substantial existing analysis of UK research staff demographics and experiences.

[15] As noted in the introduction, there has been some discussion of what models of communication should be drawn upon by those who carry out public engagement with research: are 'public understanding of science' models, in which information is understood as being straightforwardly passed from academics to lay audiences, patronising and outdated, and, if so, how far should 'dialogue' models be taken (should, for instance, publics have a say in defining the aims and directions of research)? While many institutions—such as the NCCPE—have come down on the side of simply emphasising the need for diversity in the practice of public engagement, the debate remains a live one. For an overview see Bell 2009; Holliman et al. 2009.

necessary—thing. Many respondents expressed a sense that public engagement was something they should be doing (even if they currently were not): as one focus group participant said, "you heard that you should be doing more". In many cases, this sense was tied to understandings of the expectations of funders, the wider academic community, and indeed the research-society contract as a whole. The following quotes are indicative of the ways in which public engagement was seen as a normal academic activity:

> Outreach is increasingly important in academia. (Survey response)
> …public engagement is as much part of my job as being in the lab. (Survey response)

The rationale given for this normalisation was often that engagement is part of a wider duty or requirement: transparency, openness and 'informing the tax payer' were seen as fundamental responsibilities of researchers whose work is publically funded. Public engagement is thus viewed as integral to an (implicit) contract between research and society, in which public money pays for university research and therefore "they have a right to know what we are doing" (Focus group 1). This obligation is understood as operating at a number of different levels, from that of an individual research project to all of those potentially affected by a research topic—in the quote below, for instance, the responsibility lies at the level of the lab:

> I do like to interact with the general public, and I consider it part of the 'job' showing and explaining what researchers do in a lab that uses public money. (Survey response)

Public engagement as rewarding

As with other studies (Burchell et al. 2009; Pearson et al. 1997), those who had participated in public engagement tended to view their experiences in positive terms, with engagement seen as an enjoyable and rewarding process for both researchers and lay participants (in the quote directly above, for instance, the respondent notes that they "*like* to interact with the general public"—and thus that it is a pleasure as well as a responsibility). Many survey responses simply noted, in answer to a question about the desired outcomes of public engagement, that it should be 'fun' or 'satisfying' to all involved. Other participants suggested that engagement can bring its own rewards in the form of contact with different perspectives on research. The researcher quoted below gave an extended account of the pleasures and benefits of her engagement experience, and specifically the ways in which public interest in her work was a boost for her personal understanding of, and attitude towards, her research:

> I think that maybe it needs to be highlighted how beneficial it is to researchers themselves. I found that part of the project—interviews and television things—they were scary at the time, but when you met somebody who'd seen it and wanted to talk to you about your research … seeing people engaging in the subject and asking you questions and being interested in something that you've been working on is a very rewarding aspect … it can make you feel a lot more positive about your research. (Focus group 3)

A few participants also noted personal rewards such as increased publicity for your research—in the form of the raising of "my personal profile", for instance, or "something for the CV" (Survey responses)—or, rather more cynically, being able "tick a 'interaction with public' box for work personal development reviews" (Survey response).

Public engagement as diverse

As noted in the introduction, a distinguishing feature of public engagement in the UK is its diversity: the term can cover activities from public lectures to participatory research (Duncan and Spicer 2010; Turney 2006). This diversity is reflected in the data, in which there is a recurrent acknowledgement that, firstly, the nature of any engagement activity will depend on its context and purposes, and secondly, that, given this, different forms of public engagement can be equally valid.

These principles were frequently articulated through the lens of the research project—unsurprising, given that fixed term research staff tend to work on specific projects on which their funding depends (Hockey 2004). While comments such as "[desired outcomes of public engagement] depends very much on the type of project" were common in the survey, the focus groups gave scope for more extended discussion of the ways in which public engagement would be different for different kinds of research, or at different points within a particular research project. The extract below gives some sense of this insistence on diversity:

> …it depends on the stage of the research that you're at. If you're at the beginning you might do different things to what you might do at the end, or you might do things like have a website throughout the whole project, but then you might do particular events or particular things at different stages depending on what the point of the public engagement actually is- whether actually you want people to help you shape the research, or whether you want to disseminate it at the end… (Focus group 2)

There is a clear sense, then, that one size does not fit all when it comes to public engagement. The forms of engagement that participants discussed, however, do fall into two key models: what we might call 'education' and 'participation' (or, to use the language of contemporary debates in science communication, 'public understanding of science' and 'dialogue'; see Holliman et al. 2009). In the former, the emphasis—whatever the activity type—is on communication *to* lay publics. The following quote is indicative:

> [Public engagement means:] Telling non specialists about what you do, so they get excited about it, so that the government and industry wants to spend more money in research AND so that the non-specialists can make better decisions in their everyday lives. (Survey response)

Here the emphasis is firmly on "telling non specialists about what you do" and thus on the positive effects this will have for research funding and laypeople's lives. At other points in the data, however, researchers speak of engagement as impacting the research process itself—as being something that is fundamentally dialogic, and which their work in some way will benefit from or be directed by:

> Hone my research ideas, feedback.
> Gain perspectives from the public.
> In healthcare research it is essential that we have service user involvement (Survey responses)

Much more, of course, could be said about these models of engagement, which reflect enduring tensions within both the practice of public outreach and contemporary debate about the reach and impact of public engagement (to what extent should it be allowed to define the course of research? See Duncan and Spicer 2010; Holliman et al. 2009; Irwin 2006). It is significant, then, that both models are present in this data (cf Davies 2008), and

that researchers tend to emphasise the diversity and flexibility of engagement rather than any one, normatively applied, model.

The challenges of public engagement

As well as attempting to characterise the degree to which research staff are involved in public engagement, and some of the ways that they understand it, the research also explored the challenges that participating in it could entail. The findings here can be summarised into two key groups of reported barriers to involvement: practical challenges such as lack of communication skills or of information about engagement opportunities; and more institutional issues such as time pressures or lack of recognition. These are discussed below.

Practical challenges

Both responses to open-ended survey questions and the focus group discussions included references to a set of barriers to engagement which might be described as practical: focused on pragmatic concerns relating to funding, skills, and information. Perhaps unsurprisingly, for instance, one key concern was participants' ability to get involved in public engagement at the level of the interactions that would take place. Did they—they wondered—have the right skills to be able to communicate with public audiences? Those who had had experience of engagement emphasised its difficulties (as well as its pleasures): writing for or talking with the public required a completely different skill set to that which they generally used in research, and often involved a sharp learning curve. Particular areas in which respondents felt that they required further training or resources included identifying audiences ("knowing who to try and engage", Focus group 3), finding the right level and tone within communication (the challenge of "simplifying language and concepts and yet not dumbing down", Survey response), and, perhaps most difficult, negotiating the differing interests and priorities that lay publics may have. This latter point—that publics may be interested in different kinds of questions to researchers, or expect answers which deliver a degree of certainty not usual in research—is expressed in the following exchange, taken from a discussion of the challenges of engagement within one of the focus groups:

> Anita Yeah, they [the public] want sort of, one, one, one nice… what's the word I'm looking for?
>
> Jen Truth?
>
> Anita Truth, yes, yes, they want a (*inaudible*), they want a single truth that's kind of clear, well-defined and in black and white, and that's not the way the world works. (Focus group 3)[16]

Researchers also pointed to a range of support needs which, if not met, hampered participation in engagement. For instance, external funding in some form is often required, and gaining access to this was frequently cited as a challenge. In the quote below, one survey respondent gives an extended account of the difficulties of finding funding:

> We recently did an extensive search for PE [public engagement] funding and couldn't find anything that provided more than a pittance that we were eligible for.

[16] All participant names have been anonymised.

> Sadly it can be quite hard to work PE into public sector funding proposals where the all important thing is to keep your bid cost as low and as streamlined as possible. (Survey response)

Similarly, respondents also cited a 'lack of support'—such as training, organisation, and tacit encouragement from senior staff or from the university—and lack of information as barriers to public engagement:

> The university is not in the mind-set to deal with the public. Often public engagement happens despite the university bureaucracy, not because of it. (Survey response)

> Well my main barrier was just that I didn't really know about it, or how to get into it, really, until very recently. I just didn't know what to do, or where to go to find out, or where, how to get involved. (Focus group 1)

Institutional issues

Participants also highlighted a set of what are perhaps more fundamental—and certainly more insidious—inhibitors of research staff participation in public engagement, relating to assumptions about the nature and practice of university research and what it means to be a contract researcher. In describing these issues, participants suggested that the structure of contemporary research itself is a barrier to public engagement: that, for instance, a 'publish or perish' mentality meant that engagement was often seen (by themselves as well as by others) as a distraction, or that the short-term nature of project-based research posed challenges for sustained engagement with public groups.

For instance, lack of time was a key theme throughout the data and a particular emphasis within the focus groups, where the busyness of research careers was repeatedly discussed. Researchers tend already to have packed schedules, it was argued, and it is therefore difficult to fit in anything else on top of what is already in the basic job description. The quote shown below, from focus group 2, is representative in depicting a world in which the emphasis has to be the "research" and where anything else is seen as a distraction:

> Time. When you hear the words [public engagement] you think how much time will it actually take, how much time will it take away from my research that I'm employed to do, essentially? I suppose that's my initial thought on it, which is maybe a bit of a negative thought, but it certainly is the first consideration I have. (Focus group 2)

Many other researchers similarly emphasised that research had to be prioritised within their day to day work (which they are "employed to do"), and that public engagement was not considered an integral part of this research. The survey respondent quoted below, for instance, gives an account of how engagement is not seen as "worthwhile":

> Engagement is not really recognised as a worthwhile activity in our annual 'Performance review'. I've spent more time on engagement this year than ever before and my publication record has suffered, I've been told this has been 'noticed'. 'Publish or Die' is still the pervading mantra in research universities. Blogs etc. are not seen as publications in this regard. (Survey response)

This emphasis on research to the exclusion of all other kinds of activity is characterised in two ways. The drive to 'publish or die' may come from the researcher themselves—particularly given that, as many participants mentioned, the academic job market is

currently at a low and competition for permanent (and indeed temporary) posts is fierce. Other respondents framed the prioritisation of research as largely emanating from others in the academy, and particularly from PIs (Principal Investigators) or research managers. As one survey participant noted, "I was told by my boss that he didn't get the money through grants to pay me to do anything other than research for him". In some cases, at least, this led to staff carrying out engagement in their own time or feeling 'guilty' about their activity: "I try to do a lot in my own time and I feel guilty spending work time on e-mails, prep etc." (survey response). It is not surprising, then, that the need for the goodwill of other academics was also viewed as a key challenge to participation in public engagement, with lack of support from PIs and other senior colleagues cited as barriers and a number of respondents reporting feelings of isolation or 'being looked down on'.

Research staff experience is precarious not just because of dependency on senior colleagues but also because of its transient nature (as McAlpine 2010, notes, research contracts are at the most 5 years, and generally much less). This transiency was another key theme within the data, with the "here today but not tomorrow" (Focus group 1) nature of contract research viewed as a fundamental barrier to carrying out public engagement as it entails, for instance, a continual need to job hunt or apply for fresh funding. This, of course, relates to the prioritisation of research mentioned above as well as to time constraints on public engagement (many participants noted the gruelling and time-consuming nature of the application process). As the quote below indicates, publishing will help you find a job and is therefore a priority:

> Because as it is, you're just focused on that next job because you know your funding's running out in a year, you've got to start looking for jobs, you know, and to get that next job you need a big list of publications. Anything else is nice, and people like it if you've done extra things, but if you've don't have like that big list of publications then they're not interested in the first place, whatever fantastic public engagement you've done. (Focus group 3)

In addition, the project-based nature of research and the mobility of researchers were seen as barriers to building up sustained relationships with public groups, as well as ensuring that interesting results come at the very end of a project—just as research staff are moving on to new things. This frustration—that even when researchers feel morally committed to feeding back research results to research participants it is not always possible—is expressed by the speaker quoted below:

> I've been in a situation for example, on a project I worked on before I came [here] where we were going to produce that kind of literature and do feedback sessions with the people who'd participated in the research. And because I left the project, you know the next thing came up and I left, that all went out the window because I was the person who'd made all the contacts … I'm not flattering myself that that feedback session was stuff they'd really want to know! But I always find it kind of morally bad that that didn't happen. (Focus group 2)

All of these issues—mobility, the need to 'publish or perish', lack of autonomy in ordering research priorities—are essentially structural, relating to the shared experience of contract research rather than to the specificities of involvement in public engagement (Hockey 2004; McAlpine 2010). It is striking, then, that they are viewed as profoundly problematic with respect to engagement, and that they are seen as just as pressing challenges to participation as the more obvious practical needs of communication skills training or funding.

Conclusion

Public engagement is a key emphasis within the UK academy, with programmes such as the NCCPE, the Concordat for Engaging the Public with Research, and Pathways to Impact (NCCPE 2011; RCUK 2010, 2011) seeking to develop "a research culture that values, recognises and supports public engagement" (RCUK 2010, 4). Public engagement is, then, increasingly demanded of all of those working in that academy, including research staff (Duncan and Spicer 2010). The research discussed in this article has explored the ways in which this emphasis is being experienced at the level of individual university employees, taking contract research staff as a case study population to find that approximately two thirds of survey respondents had been involved in public engagement activities. As in other studies (Abreu et al. 2009; Burchell et al. 2009; Pearson et al. 1997; Royal Society 2006), participation tended to be through one-way rather than dialogic activities, to be seen as rewarding and enjoyable, and to face a number of constraints and barriers. More unusually (cf Besley and Nisbet 2011; Davies 2008), the data revealed a strong emphasis on the necessary *diversity* of public engagement activities. Rather than respondents focusing on a particular model of engagement—for instance one involving educating "the public so that non-experts will make policy choices in line with the preferences of scientists", Besley and Nisbet 2011, 12)—at least two models, of education and participation, are present in the data, and participants frequently emphasised that the nature, outcomes and purpose of engagement "depends very much on the type of project" (Survey response). One might speculate that this recognition of diversity can be related to the activities of enablers, supporters and funders such as RCUK and NCCPE who similarly emphasise that "public engagement with research describes a diversity of activities" (RCUK 2010, 4).

In closing I want to briefly reflect on the challenges that research staff report, and in particular those I described as structural or institutional—issues around shared expectations of the research process which dictate the prioritisation of publication or the short-term nature of research contracts. These are, I would suggest, not so much challenges of taking part in public engagement specifically as of working as a contract researcher more generally: it seems unlikely, for instance, that frustrations relating to mobility, lack of autonomy or the need to prioritise publication are confined to participation in public engagement or even 'third stream' activities as a whole (see Wigren-Kristoferson et al. 2011). Indeed, these kinds of frustrations have been reported elsewhere as an intrinsic part of the research staff experience (Bryson 1999). While it is clear that research staff develop sophisticated stratagems to manage both career progression and personal identity in the face of job insecurity (Collinson 2003; Hockey 2004; McAlpine 2010), it seems worth noting again that this does come at a cost. The participants in this research were, as I have argued, generally aware of public engagement and well-disposed towards it: of the survey respondents who had never participated in engagement, for instance, only 8 % said that this was because they 'just didn't want to' get involved. Those who did carry out engagement, however, were clear that there had been career-related costs. As one survey respondent noted, "public engagement activities have been frowned upon, privately and publicly, as a waste of valuable research time by [the] head of department. There is a worry that you won't be taken seriously as a research scientist". This data has revealed, then, a central tension in the drive towards public engagement in the UK academy. While it is advocated—even demanded—by policy documents and government discourse, it seems that it remains difficult to put into practice, at least for this population of contract research staff (Of course, it is likely that challenges such as the low valuation of engagement will be experienced even by those with higher job security or longer contracts).

In the sense that both public engagement and research staff sit somewhat uneasily within the dominant model of research as an essentially publication-focused, time-intensive activity—rather than, say, a process which incorporates public engagement, teaching, or commercial activities—both are marginalised. As the practical challenges to public engagement reported above attest, training in the skills necessary for public communication and increased funding and support for it are certainly important. What will ultimately be more influential in normalising public engagement in the manner that is currently being advocated, however, is a broadening of what—and who—is considered valuable within the academy. As Colin Bryson wrote over a decade ago:

> The goal should be that contract research becomes integrated and harmonised with other academic roles. The path is fraught with obstacles because it involves a change in culture and a widening of the conception of 'academic'. This is the real issue to be addressed. (Bryson 1999, 46)

This "change in culture" is still pressing and necessary—not only for contract research staff and the "conception of 'academic'", but also with regard to public engagement and the conception of research.

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References

Abreu, M., Grinevich, V., Hughes, A., & Kitson, M. (2009). *Knowledge exchange between academics and the business, public and third sectors*. Cambridge: Centre for Business Research, University of Cambridge.

Bell, A. (2009). Doing it by the book: Introductory guides for twenty-first century science communication. *Science as Culture, 18*(4), 511. doi:10.1080/09505430903186096.

Besley, J. C., & Nisbet, M. (2011). How scientists view the public, the media and the political process. *Public Understanding of Science,*. doi:10.1177/0963662511418743.

Bowman, D. M., & Hodge, G. A. (2007). Nanotechnology and public interest dialogue: Some international observations. *Bulletin of Science, Technology & Society, 27*(2), 118–132. doi:10.1177/0270467606298216.

Bryson, C. (1999). Contract research: The failure to address the real issues. *Higher Education Review, 31*(2), 29–49.

Burchell, K., Franklin, S., & Holden, K. (2009). *Public culture as professional science: Final report of the ScoPE project (scientists on public engagement: From communication to deliberation)*. London: LSE.

Chilvers, J., & Macnaghten, P. (2011). *Science, trust and public engagement*. A literature review for the BIS/Sciencewise-ERC "Science, Trust and Public Engagement" project. BIS/Sciencewise-ERC.

Collinson, J. A. (2000). Social science contract researchers in higher education: Perceptions of craft knowledge. *Work, Employment & Society, 14*(1), 159–171. doi:10.1177/09500170022118310.

Collinson, J. A. (2003). Working at a marginal 'career': The case of UK social science contract researchers. *The Sociological Review, 51*(3), 405–422.

Creswell, J. W. (2002). *Research design: Qualitative, quantitative, and mixed methods approaches*. Beverly Hills: SAGE.

Davies, S. R. (2008). Constructing communication: Talking to scientists about talking to the public. *Science Communication, 29*(4), 413–434.

Davies, S. R. (2013). Constituting public engagement: Meanings and genealogies of PEST in two U.K. studies. *Science Communication*. doi:10.1177/1075547013478203.

Duncan, S., & Spicer, S. (2010). *The engaging researcher: Inspiring people to engage with your research*. Cambridge: Careers Research and Advisory Centre.

Gregory, J., & Lock, S. J. (2008). The evolution of 'public understanding of science': Public engagement as a tool of science policy in the UK. *Sociology Compass, 2*(4), 1252–1265.

Hockey, J. (2004). Working to return to employment: The case of UK social science contract researchers. *Studies in Higher Education, 29*(5), 559–574. doi:10.1080/0307507042000261544.
Holdsworth, C., & Quinn, J. (2010). Student volunteering in english higher education. *Studies in Higher Education, 35*(1), 113–127. doi:10.1080/03075070903019856.
Holliman, R., Whitelegg, E., Scanlon, E., Smidt, S., & Thomas, J. (Eds.). (2009). *Investigating science communication in the information age: Implications for public engagement and popular media*. Oxford: Oxford University Press.
Irwin, A. (2006). The politics of talk: Coming to Terms with the 'New' scientific governance. *Social Studies of Science, 36*(2), 299–320.
Irwin, A., & Wynne, B. (1996). *Misunderstanding science? The public reconstruction of science and technology*. Cambridge: Cambridge University Press.
Jones, R. (2008). When it pays to ask the public. *Nature Nanotechnology, 3*(10), 578–579. doi:10.1038/nnano.2008.288.
Laudel, G., & Gläser, J. (2007). From apprentice to colleague: The metamorphosis of early career researchers. *Higher Education, 55*(3), 387–406. doi:10.1007/s10734-007-9063-7.
Lee, T., Fuller, A., Bishop, D., Felstead, A., Jewson, N., Kakavelakis, K., et al. (2006). *Reconfiguring contract research? Career, work and learning in a changing employment landscape*. UK: In Brighton.
Lee, L. J., Gowers, I., Ellis, L., & Bellantuonoa, I. (2010). Well rounded Postdoctoral Researchers with initiative, who are not always 'tied to the bench' are more successful academically. *International Journal for Researcher Development, 1*(4), 269–289.
Lehr, J. L., McCallie, E., Davies, S. R., Caron, B. R., Gammon, B., & Duensing, S. (2007). The role and value of dialogue events as sites of informal science learning. *International Journal of Science Education, 29*(12), 1–21.
McAlpine, L. (2010). Fixed-term researchers in the social sciences: Passionate investment, yet marginalizing experiences. *International Journal for Academic Development, 15*(3), 229–240. doi:10.1080/1360144X.2010.497686.
McCallie, E., Bell, L., Lohwater, T., Falk, J., Lehr, J. L., Lewenstein, B. V., et al. (2009). *Many experts, many audiences: Public engagement with science and informal science education. A CAISE inquiry group report*. Washington DC: Center for Advancement of Informal Science Education (CAISE).
Mellors-Bourne, R., & Metcalfe, J. (2009). *Careers in research online survey (CROS) 2009: Analysis of aggregated UK results*. Cambridge: Careers Research and Advisory Centre (CRAC) Limited.
Miller, S. (2001). Public understanding of science at the crossroads. *Public Understanding of Science, 10*(1), 115–120.
NCCPE. (2011). "National Co-ordinating Centre for Public Engagement Website." http://www.publicengagement.ac.uk/.
Oliver, L., & Ackers, H. L. (2005). *Fixed term positions in the academic career trajectory*. Leeds: University of Leeds.
Pearson, G., Pringle, S. M., & Thomas, J. N. (1997). Scientists and the public understanding of science. *Public Understanding of Science, 6*(3), 279–289.
Rask, M., Maciukaite-Zviniene, S., & Petrauskiene, J. (2012). Innovations in public engagement and participatory performance of the nations. *Science and Public Policy, 39*(6), 710–721. doi:10.1093/scipol/scs089.
RCUK. (2010). *Concordat for engaging the public with research*. Swindon: RCUK. http://www.rcuk.ac.uk/per/Pages/Concordat.aspx.
Science for All Expert Group. (2010). *Science for all: Report and action plan from the science for all expert group*. London: BIS.
Shelton, N., Laoire, C. N., Fielding, S., Harvey, D. C., Pelling, M., & Duke-Williams, O. (2001). Working at the coalface: Contract staff, academic initiation and the RAE. *Area, 33*(4), 434–439.
Silverman, D. (2005). *Doing qualitative research*. London: Sage.
Society, R. (2006). *Survey of factors affecting science communication: Conclusions, recommendations and actions*. London: Royal Society.
Tashakkori, A., & Creswell, J. W. (2007). Editorial: The new era of mixed methods. *Journal of Mixed Methods Research, 1*(1), 3–7. doi:10.1177/2345678906293042.
Turney, J. (2006). *Engaging science: Thoughts, deeds, analysis and action*. London: Wellcome Trust.
Wigren-Kristoferson, C., Gabrielsson, J., & Kitagawa, F. (2011). Mind the gap and bridge the gap: Research excellence and diffusion of academic knowledge in Sweden. *Science and Public Policy, 38*(6), 481–492. doi:10.3152/030234211X12960315267859.